



APPENDIX G

PUBLIC NOTICE

News media information 202 / 418-0500
Fax-On-Demand 202 / 418-2830
TTY 202 / 418-2555
Internet: <http://www.fcc.gov>
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Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554

DA 04-2612

August 24, 2004

WIRELESS TELECOMMUNICATIONS BUREAU ACTION
REGION 16 (KANSAS) 700 MHz
PUBLIC SAFETY REGIONAL PLANNING COMMITTEE
ANNOUNCES MEETING

The Region 16 (Kansas) 700 MHz Public Safety Regional Planning Committee Chairs announce that the next meeting of the Region 16 (Kansas) 700 MHz Public Safety Regional Planning Committee will be held Wednesday, October 20, 2004 from 10:00 a.m. – 3:00 p.m., in the Kansas Highway Patrol facility located at 1821 Front Street, Hays, Kansas.

The meeting of the Region 16 (Kansas) 700 MHz Public Safety Regional Planning Committee will convene at 10:00 a.m. The purpose of this meeting is to continue developing a statewide (Kansas) plan to meet the needs of the 700 MHz spectrum users including Public Safety, Public Health, Emergency Management and Utility services.

All eligible public safety providers whose sole purpose or principal purpose is to protect the safety of life, health, or property in Region 16 would utilize these frequencies. It is essential that not only public safety, but all government, Native American Tribal, and non-governmental organizations eligible under Section 90.523 of the Commission's Rules be represented in order to ensure that each agency's future spectrum needs are considered in the allocation process.

Interested parties wishing to participate in the planning for the use of new public safety spectrum in the 700 MHz band and 4.9 GHz band within Region 16 are encouraged to attend. For additional information concerning this meeting, please contact either the Region 16 Chair or Vice-Chair listed below.

Edwin Geer, Chair

Captain Ken Justice, Vice-Chair



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**Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554**

DA 04-4037

December 23, 2004

**WIRELESS TELECOMMUNICATIONS BUREAU ACTION
REGION 16 (KANSAS) 700 MHz
PUBLIC SAFETY REGIONAL PLANNING COMMITTEE
MEETING ANNOUNCEMENT**

The Region 16 (Kansas) 700 MHz Public Safety Regional Planning Committee Chair announces that the next meeting of the Region 16 (Kansas) 700 MHz Public Safety Regional Planning Committee will be held Wednesday, February 9th, 2005 from 10:00 a.m. – 3:00 p.m., at the Kansas Highway Patrol Training Center, located at 2019 E. Iron, Salina, Kansas.

The meeting of the Region 16 (Kansas) 700 MHz Public Safety Regional Planning Committee will convene at 10:00 a.m. The purpose of this meeting is to continue developing a statewide (Kansas) plan to meet the needs of the 700 MHz spectrum users including Public Safety, Public Health, and Emergency Management. Additionally, the Region 16 (Kansas) 700 MHz Public Safety Regional Planning Committee will convene on this same date to continue the process for development of a statewide plan for use of the newly allocated 4.9 GHz frequency spectrum in the State of Kansas.

All eligible public safety providers whose sole purpose or principal purpose is to protect the safety of life, health, or property in Region 16 would utilize these frequencies. It is essential that not only public safety, but all government, Native American Tribal, and non-governmental organizations eligible under Section 90.523 of the Commission's Rules be represented in order to ensure that each agency's future spectrum needs are considered in the allocation process.

Interested parties wishing to participate in the planning process for utilization of the new public safety spectrum in the 700 MHz band and 4.9 GHz band are encouraged

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to attend. For additional information concerning this meeting please contact the Region 16 Chair.

Edwin Geer, Chair
915 SW Harrison, DSOB 881-W
KDOT
Topeka, Kansas 66612
PH: 785-296-5948
FX: 785-296-0999
geer@ksdot.org

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**Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554**

DA 05-2336

August 22, 2005

**WIRELESS TELECOMMUNICATIONS BUREAU ACTION
REGION 16 (KANSAS) 700 MHz
PUBLIC SAFETY REGIONAL PLANNING COMMITTEE
ANNOUNCES MEETING**

The Region 16 (Kansas) 700 MHz Public Safety Regional Planning Committee Chair announces that the next meeting of the Region 16 (Kansas) 700 MHz Public Safety Regional Planning Committee will be held Thursday September 15th, 2005 from 1:00 p.m. – 3:00 p.m., in the Eisenhower State Office Building located at 700 SW Harrison, Topeka, Kansas.

The meeting of the Region 16 (Kansas) 700 MHz National Public Safety Regional Planning Committee will convene at 1:00 p.m. The purpose of this meeting is to continue developing a statewide (Kansas) plan to meet the needs of the 700 MHz spectrum users including Public Safety, Public Health, Emergency Management and Utility services.

All eligible public safety providers whose sole purpose or principal purpose is to protect the safety of life, health, or property in Region 16 would utilize these frequencies. It is essential that not only public safety, but all government, Native American Tribal, and non-governmental organizations eligible under Section 90.523 of the Commission's Rules be represented in order to ensure that each agency's future spectrum needs are considered in the allocation process. Administrators who are not oriented in the communications field should delegate someone with this knowledge to attend, participate and represent your agency's needs.

All interested parties wishing to participate in the planning for the use of new public safety spectrum in the 700 MHz band within Region 16 are encouraged to attend.

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For further information about the meeting, please contact either the Region 16 Chair or the Region Vice-chair listed below.

Edwin Geer, Chair
700 SW Harrison, ESOB 7th Flr.
KDOT
Topeka, Kansas 66603
PH: 785-296-5948
Email: geer@ksdot.org

Captain Jason DeVore, Vice-Chair
2025 E. Iron
Salina, Kansas 67401
PH: 785-827-3065
Email: jdevore@khp.ks.gov

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Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554

DA 06-985

May 5, 2006

WIRELESS TELECOMMUNICATIONS BUREAU ACTION
REGION 16 (KANSAS) 700 MHz
PUBLIC SAFETY REGIONAL PLANNING COMMITTEE
TO HOLD MEETING

The Region 16 (Kansas) 700 MHz Public Safety Regional Planning Committee will hold its next meeting on Wednesday, June 21, 2006 from 1:00 p.m. – 3:00 p.m., in the Eisenhower State Office Building located at 700 SW Harrison, Topeka, Kansas.

The purpose of this meeting is to continue developing a statewide (Kansas) plan to meet the needs of the 700 MHz spectrum users including Public Safety, Public Health, Emergency Management and Utility services.

All eligible public safety providers whose sole purpose or principal purpose is to protect the safety of life, health, or property in Region 16 would utilize these frequencies. It is essential that not only public safety, but all government, Native American Tribal, and non-governmental organizations eligible under Section 90.523 of the Commission's Rules be represented in order to ensure that each agency's future spectrum needs are considered in the allocation process. Administrators who are not conversant with telecommunications technology should ensure that their respective agencies are represented by suitably conversant staff.

All interested parties wishing to participate in the planning for the use of public safety spectrum in the 700 MHz band within Region 16 are encouraged to attend. For further information about the meeting, please contact the Region 16 Chair listed below.

Edwin Geer, Chair
700 SW Harrison, ESOB 7th Floor
KDOT

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Topeka, Kansas 66603

PH: 785-296-5948

FX: 785-296-0999

Email: Geer@ksdot.org

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**Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554**

DA 06-1912

September 22, 2006

WIRELESS TELECOMMUNICATIONS BUREAU ACTION

REGION 16 (KANSAS) 700 MHz PUBLIC SAFETY REGIONAL PLANNING COMMITTEE ANNOUNCES MEETING

The Region 16 (Kansas) 700 MHz Public Safety Regional Planning Committee announces that its next meeting will be held on Wednesday, October 25th, 2006 from 10:00 a.m. to 3:00 p.m., at the Kansas Highway Patrol Training Center located at 2025 E. Iron, Salina, Kansas.

- The purpose of this meeting is to continue develop a statewide (Kansas) plan to meet the needs of the 700 MHz spectrum users including Public Safety, Public Health, and Emergency Management.

All eligible public safety providers whose sole purpose or principal purpose is to protect the safety of life, health, or property in Region 16 would utilize these frequencies. It is essential that not only public safety, but all government, Native American Tribal, and non-governmental organizations eligible under Section 90.523 of the Commission's Rules be represented in order to ensure that each agency's future spectrum needs are considered in the allocation process. Administrators who are not oriented in the communications field should delegate someone with this knowledge to attend, participate and represent your agency's needs.

All interested parties wishing to participate in the planning for the use of new public safety spectrum in the 700 MHz band are encouraged to attend. For further information about the meeting, please contact the Region 16 Chair listed below.

**Edwin Geer, Chair
Kansas Department of Transportation**

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700 SW Harrison, ESOB 7th Floor
Topeka, Kansas 66603
(785) 296-5948
Geer@ksdot.org

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July 2004

Publisher's Affidavit

I, Ann M. Garrison, being duly sworn declare that I am the Advertising Services Coordinator of THE SALINA JOURNAL, a daily newspaper published at Salina, Seline County, Kansas, and of general circulation in said county, which newspaper has been admitted to the mails as second class matter in said county, and continuously and uninterruptedly published for five consecutive years prior to first publication of attached notice, and that the

Quarterly Meeting Notice has been correctly published in the entire issues of said newspaper one time, publication being given in the issue of July 17 20 04

Ann M. Garrison
Subscribed and sworn to before me, this 20th

day of July A.D. 20 04
W. G. Allen
Notary Public

Printer's Fee \$ 18.30

Published in The Salina
Journal July 17, 2004
NOTICE
The Region 10 (Kansas)
700 10th Regional Planning
Committee announced that its
next quarterly meeting will be
held on Wednesday, July 21st,
2004, from 10:00 a.m. - 3:00
p.m. at the Kansas Highway
Dept. - meeting room located
at 2019 E. 10th Ave., Salina,
KS 67401 (10)



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AFFIDAVIT OF PUBLICATION

State of Kansas, Ellis County, ss:

Mary Karst

being first duly sworn, deposes and says:

That he/she is Advertising Manager of THE HAYS DAILY NEWS, a daily newspaper printed in the State of Kansas, and published in and of general circulation in Ellis County, Kansas, with a general paid circulation on a yearly basis in Ellis County, Kansas, and that said newspaper is not a trade, religious or fraternal publication.

Said newspaper is published daily, except Saturday, is published at least weekly 50 times a year; has been so published continuously and uninterrupted in said county and state for a period of more than five years prior to the first publication of said notice; and has been admitted at the post office of Hays in said county as second class matter.

That the attached notice is a true copy thereof and was published in the regular and entire issue of said newspaper for 2 consecutive weeks, the first publication thereof being made as aforesaid on the 1st day of October, 2004, with subsequent publications being made on the following dates:

<u>Oct 15,</u>	<u>2004</u>	<u> </u>	<u>20</u>
<u> </u>	<u>20</u>	<u> </u>	<u>20</u>
<u> </u>	<u>20</u>	<u> </u>	<u>20</u>

Mary Karst

Subscribed and sworn to before me this 15th day of October, 2004.

[Signature]

Notary Public

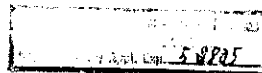
My Appointment expires 5-28-05

Printer's Fee..... \$28.40

Additional copies..... \$

Total Fee..... \$28.40

Oct 2004
(First published in The Hays Daily News October 1, 2004)
The Region 18 (Kansas) 700 MHz Public Safety Regional Planning Committee Chairs announce that the next meeting will be held Wednesday October 20th, 2004 from 10:00 a.m. to 3:00 p.m., at the Kansas Highway Patrol facility located at 1821 Front Street, Hays, Kansas. The purpose of this meeting is to continue developing a statewide (Kansas) plan to meet the needs of the 700 MHz spectrum users including Public Safety, Public Health, Emergency Management and Utility services.
(Last published in The Hays Daily News October 16, 2004)



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Feb 2005

Publisher's Affidavit

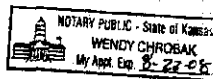
I, Nicole Veatch, being duly sworn declare that I am the Classified Coordinator of THE SALINA JOURNAL, a daily newspaper published at Salina, Saline County, Kansas, and of general circulation in said county, which newspaper has been admitted to the mails as second class matter in said county, and continuously and uninterruptedly published for five consecutive years prior to first publication of attached notice, and that the

Meeting Notice has been correctly published in the entire issues of said newspaper one time, publication being given in the issue of February 5 20 05

Nicole Veatch
Subscribed and sworn to before me, this 10th day of February A.D. 20 05

W. G. Allen Notary Public
Printer's Fee \$ 17.00

Published in, this date
James Patrick B. 2005
The Republic of Kansas
700-1800 Highway Patrol
Catherine, Missouri, and the
most quality meeting will be
held Wednesday, February
10th, 2005, starting at
10:00AM, at the Kansas
Highway Patrol meeting room
located at 2019 E. Iron Ave.
Salina, KS. (16)



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Sept 2005

AFFIDAVIT OF PUBLICATION

STATE OF KANSAS, SHAWNEE COUNTY

Topeka Capital-Journal

760 MBE REGIONAL PLANNING COMM
ROOM 7515
900 SW JACKSON
TOPEKA KS 66612

REFERENCE: 51061331

0509015908 8036/PublishedInNet

Linda J. Willey, being first duly sworn, deposes and says: That she is the Legal Clerk of the TOPEKA CAPITAL-JOURNAL, a daily newspaper printed in the State of Kansas, and published in and of general circulation in SHAWNEE County, Kansas, with a general paid circulation on a monthly basis in SHAWNEE County, Kansas, and that said newspaper is not a trade, religious or fraternal publication.

Said newspaper is a daily published at least 50 times a year; has been so published continuously and uninterruptedly in said county and state for a period of more than five years prior to the first publication of said notice; and has been admitted at the post office of Topeka in said County as second class matter.

That the attached notice is a true copy thereof and was published in the regular and entire issues of said newspaper.

PUBLISHED ON: 09/10

No. 272

(Published in the
Topeka Capital-Journal
Sat., Sept. 10, 2005)

The Region 16 (Kansas)
760 MBE Public
Society & Regional
Planning Committee
Chair's meeting will
be held Thursday
September 15th, 2005
from 10:00 a.m. - 11:00
a.m. in the Glen-
hewer State Office
Bldg located at 700
SW Harrison, Topeka,
Kansas. The purpose
of this meeting is to
continue discussion &
work on the Glen-
hewer State Office
Bldg to meet the
needs of the 760 MBE
specimen users
including Public
Safety, Public Health,
Emergency Man-
agement and Utility
services.

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Receipt of Payment

Topeka Capital-Journal

9:07 AM

331

HZ REGIONAL PLANNING

Credit Card:

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Num

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0.00 Ad #: 2046272

48.64 by: Waiting for Payment

48.64 Balance: 0.00

Receipt No:

Ad shown is not actual print size

93 Words

Ad Size 1.00 x 2.69 Inches

Date:

Customer Copy

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Topeka Cap. Journal
for meeting in June 2006 in Topeka

No. 786

(Published in the
Topeka Capital Journal
Sat., June 17, 2006)

The Region 10 (Kansas)
700 MHz Public
Safety Regional
Planning Committee
Chairman announces that
the next meeting will
be held Wednesday
June 21st, 2006 from
1:00 p.m. until 4:00
p.m., in the 4th floor
conference room of
the Eisenhower State
Office Building
located at 700 SW
Harrison in Topeka,
Kansas. The purpose
of this meeting is to
continue developing a
statewide (Kansas)
plan to meet the
needs of the 700 MHz
spectrum users
including Public
Safety, Public Health
and Emergency
Management.

APPENDIX H

REGION 16 (Kansas) BYLAWS

ARTICLE I

NAME & PURPOSE

- 1.1 Name and Purpose. The name of this Region shall be Region 16. Its primary purpose is to foster cooperation, planning, development of the regional plan and the implementation of the plan in the 700 MHz Public Safety Band.

ARTICLE II

MEMBERS

For purposes of this Article, the term "member", unless otherwise specified, refers to both voting and non-voting members.

- 2.1 Number, Election and Qualification. The Regional Committee shall have two classes of members, "voting members" and "non-voting members, as approved by the Regional Planning Committee.

Voting Members. Voting members shall consist of one representative from any single agency engaged in public safety eligible to hold a license under 47 CFR 90.20, 47 CFR 90.523 or 47 CFR 2.103. Except that a single agency shall be allowed no more than one vote for each distinct eligibility category (e.g. police, fire, EMS, highway) within the agency's organization or political jurisdiction. In voting on any issue the individual must identify himself/herself and the agency and eligibility category, which he or she represents. Voting members may not vote on issues involving their entity.

Non-Voting Members. Non-voting members are all others interested in furthering the goals of public safety communications.

- 2.2 Tenure. In general, each member shall hold MEMBERSHIP from the date of acceptance until resignation or removal.
- 2.3 Powers and Rights. In addition to such powers and rights as are vested in them by law, or these bylaws, the members shall have such other powers and rights as the membership may determine.
- 2.4 Suspension and Removal. A representative may be suspended or removed with cause by vote or a majority of members after reasonable notice and opportunity to be heard. Failure to attend 50% of meetings held in a calendar year shall be a specific cause for removal from the membership.
- 2.5 Resignation. A member may resign by delivering written resignation to the chairman, vice-chairman, treasurer, or secretary of the Regional Committee or to a meeting of the members.
- 2.6 Quarterly Meetings. The quarterly meeting of the members shall be held at a specified location on the date each three months or if that date is a legal holiday in the place

APPENDIX H

where the meeting is to be held, then at the same hour on the next succeeding day not a legal holiday. If a quarterly meeting is not held as herein provided, a special meeting of the members *may be held in place thereof with the same force and effect* as the quarterly meeting, and in such case all references in these bylaws, except in this Section 2.6, to the quarterly meeting of the members shall be deemed to refer to such special meeting. Any such special meeting shall be called and notice shall be given as provided in Section 2.7 and 2.8.

2.7 Special Meetings. Special meetings of the members may be held at any time and at any place within the Regional Committee area. Special meetings of the members may be called by the chairman or by the vice-chairman, or in case of death, absence, incapacity, by any other officer or, upon written application of two or more members.

2.8 Call and Notice.

A. Quarterly meetings. Reasonable notice of the time and place of special meetings of the members shall be given to each member. Such notice need not specify the purposes of a meeting, unless otherwise required by law or these bylaws or unless there is to be considered at the meeting (i) amendments to these bylaws or (ii) removal or suspension of a member who is an officer.

B. Reasonable and sufficient notice. Except as otherwise expressly provided, it shall be reasonable and sufficient notice to a member to send notice by mail at least five days or by e-mail/facsimile at least three days before the meeting, addressed to such member at this or her usual or last known business address, or, to give notice to such member in person or by telephone at least three days before the meeting.

2.9 Quorum. At any meeting of the members, a minimum of five voting members and a majority of the officers must be present to constitute a quorum. Any meeting may be adjourned to such date or dates not more than ninety days after the first session of the meeting by a majority of the votes cast upon the question, whether or not a quorum is present, and the meeting may be held as adjourned without further notice.

2.10 Action by Vote. Each voting member, representing a particular agency (one vote per agency) shall have one vote; non-voting members have not right to vote. When a quorum is present at any meeting, a majority of the votes properly cast by voting members present shall decide any question, including election to any office, unless otherwise provided by law or these bylaws.

2.11 Action by Writing. Any action required or permitted to be taken at any meeting of the members may be taken without a meeting if all members entitled to vote on the matter consent to the action in writing and the written consents are filed with the records of the meetings of the members. Such consents shall be treated for all purposes as a vote at a meeting.

2.12 Proxies. Voting members may vote either in person or by written proxy dated not more than two weeks before the meeting named therein, which proxies shall be filed before being noted with the secretary or other person responsible for recording the proceedings of the meetings. Unless otherwise specifically limited by their terms, such proxies shall entitle the holders thereof to vote at any adjournment of the meeting by the proxy shall terminate after the final adjournment of such meeting.

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- 2.13 Voting on One's Own Application. At no time can a voting member vote on his/her application.
- 2.14 Special Interest Voting. A voting member can **not** have a commercial interest in any of his/her region and/or adjacent regions application(s) on which he/she is reviewing, approving and/or voting.

ARTICLE III

OFFICERS AND AGENTS

- 3.1 Number and Qualification. The officers of the Regional Committee shall be a chairman, vice-chairman, treasurer, secretary and such other officers, if any, as the voting members may determine. All officers must be voting members of the Regional Committee.
- 3.2 Election. The officers shall be elected by the voting members at their first meeting, and thereafter as needed.
- 3.3 Tenure. The officers shall each hold office until their successor, if any, is chosen, or in each case until he or she sooner dies, resigns, is removed or becomes disqualified.
- 3.4 Chairman and Vice-chairman. The chairman shall be the chief executive officer of the Regional Committee and, subject to the control of the voting members, shall have general charge and supervision of the affairs of the Regional Committee. The chairman shall preside at all meetings of the Regional Committee. The vice-chairman, if any, shall have such duties and powers, as the voting members shall determine. The vice-chairman shall have and may exercise all the powers and duties of chairman during the absence of the chairman or in the event of his or her inability to act.
- 3.5 Treasurer. The treasurer shall be the chief financial officer and the chief accounting officer of the Regional Committee. The treasurer shall be in charge of its financial affairs, funds, and valuable papers and shall keep full and accurate records thereof.
- 3.6 Secretary. The secretary shall record and maintain records of all proceedings of the members in a file or series of files kept for that purpose, which file or files shall be kept within the Region and shall be open at all reasonable times to the inspection of any member. Such file or files shall also contain records of all meetings and the original, or attested copies, of bylaws and names of all members and the address (including e-mail address, if available) of each. If the secretary is absent from any meeting of members, a temporary secretary chosen at the meeting shall exercise the duties of the secretary at the meeting.
- 3.7 Suspension or Removal. An officer may be suspended with cause by vote or a majority of the voting members.
- 3.8 Resignation. An officer may resign by delivering his or her written resignation to the chairman, vice-chairman treasurer, or secretary of the Regional Committee. Such resignation shall be effective upon receipt (unless specified to be effective at some other time), and acceptance thereof shall not be necessary to make it effective unless it so states.
- 3.9 Vacancies. If the office of any officer becomes vacant, the voting members may elect a successor. Each such successor shall hold office for the remainder terms, and in the

APPENDIX H

case of the chairman, vice-chairman, treasurer, and secretary until his or her successor is elected and qualified, or in each case until he or she sooner dies, resigns, is removed or become disqualified.

ARTICLE IV

AMENDMENTS

These bylaws may be altered, amended or repealed in whole or in part by vote. The voting members may by a two-thirds vote, alter, amend, or repeal any bylaws adopted by the Regional Committee members or otherwise adopt, alter, amend or repeal any provision which FCC regulation or these bylaws require action by the voting members. Bylaws should be reviewed annually or as needed by the RPC.

ARTICLE V

DISSOLUTION

This Regional Committee may be dissolved by the consent of two-thirds plus one of the members in good standing at a special meeting called for such purpose. The FCC shall be notified.

ARTICLE VI

RULES OF PROCEDURES

The Conduct of Regional Meetings including without limitation, debate and voting, shall be governed by Robert's Rules of Order, newly revised 1990 edition, ninth edition, Sarah Corbin Robert, Henry M. Robert III, and William J. Evans.

APPENDIX I

700 MHz Pre-Assignment Rules

Introduction

A process for doing the initial block assignments of 700 MHz channels before details of actual system deployments is required. In this initial phase, there is little actual knowledge of what specific equipment is to be deployed and where the sites will be. As a result, a high level simplified method is proposed to establish guidelines for frequency coordination. When actual systems are deployed, additional details will be known and the system designers will be required to select specific sites and supporting hardware to control interference.

Overview

Assignments will be based on a defined service area of each applicant. For Public Safety entities this will normally be a geographically defined area such as city, county or by a data file consisting of line segments creating a polygon that encloses the defined area. TIA/EIA TSB88-A (or latest version) will be used to determine harmful interference assuming 40 dBμ, or greater, signal in all systems coverage areas.

For co-channel assignments, the 40dBμ contour will be allowed to extend beyond the defined service area by 3 to 5 miles, depending on the type of environment, urban, suburban or low density. The interfering co-channel 15 dBμ contour will be allowed to touch but not overlap the 40 dBμ contour of the system being evaluated. All contours are (50,50). TIA/EIA TSB88-A (or latest version) will be used to determine harmful interference assuming 40 dBμ, or greater, signal in all systems coverage areas.

For adjacent and alternate channels, the interfering channels 60 dBμ will be allowed to touch but not overlap the 40 dBμ contour of the system being evaluated. All contours are (50,50). TIA/EIA TSB88-A (or latest version) will be used to determine harmful interference assuming 40 dBμ, or greater, signal in all systems coverage areas.

7.4.1.1 Discussion

The FCC limits the maximum field strength to 40 dB relative to 1μV/m (customarily denoted as 40dBμ). It is assumed that this limitation will be applied similarly to the way it is applied in the 821-824/866/869 MHz band. That is, a 40 dBμ field strength can be deployed up to a defined distance from the edge of the service area, based on the size of the service area or type of applicant, i.e. city, county or statewide system. This is important as the potential for interference from CMRS infrastructure demands that public safety systems have adequate margins for reliability in the presence of interference. The value of 40 dBμ corresponds to a signal of -92.7 dBm, received by a half-wavelength

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dipole ($\lambda/2$) antenna. The thermal noise floor for a 6.25 kHz receiver would be in the range of -126 dBm, so there is a margin of approximately 33 dB available for “noise limited” reliability. Figure 1 shows show the various interfering sources and how they accumulate to form a composite noise floor that can be used to determine the “reliability” or probability of achieving the desired performance in the presence of various interfering sources with differing characteristics.

Allowing for a 3 dB reduction in the available margin due to CMRS OOB noise lowers the reliability and/or the channel performance of Public Safety systems. TIA TR8 made this allowance during the meetings in Mesa, AZ, January 2001. In addition, there are various channel bandwidths with different performance criteria and unknown adjacent and alternate channel assignments need to be accounted for. The co-channel and adjacent/alternate sources are shown in the right hand side of Figure 1. There would be a single co-channel source, but potentially several adjacent or alternate channel sources involved.

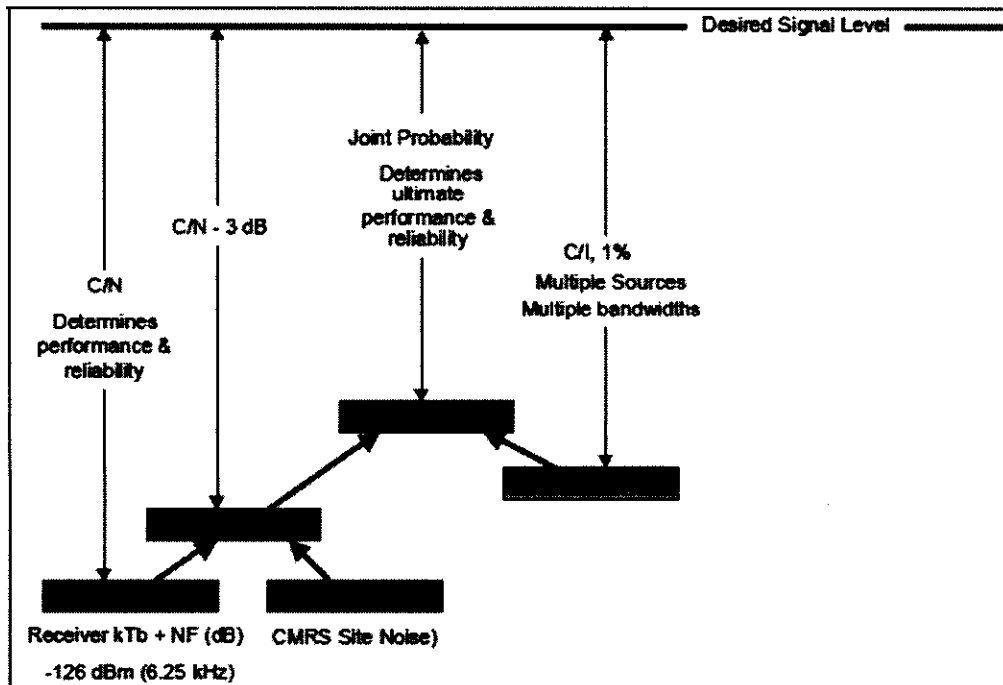


Figure 1 - Interfering Sources Create A “Noise” Level Influencing Reliability

It is recommended that co-channel assignments limit the C/I at the edge (worst case mile) be sufficient to limit that interference to <1%. A C/I ratio of 26.4 dB plus the required capture value required to achieve this goal. A 17 - 20 dB C/N is required to achieve channel performance. Table shows estimated performance considering the 3 dB noise floor rise at the 40 dB μ signal level. Performance varies due to the different Cf/N requirements of the different modulations and channel bandwidths. These values are appropriate for a mobile on the street, but are considerably short to provide reliable communications to portables inside buildings.

APPENDIX I

Comparison of Joint Reliability for various configurations				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver ENBW (kHz)	6	6	9	18
Noise Figure(10 dB)	10	10	10	10
Receiver Noise Floor (dBm)	-126.22	-126.22	-124.46	-121.45
Rise in Noise Floor (dB)	3.00	3.00	3.00	3.00
New Receiver Noise Floor (dB)	-123.22	-123.22	-121.46	-118.45
40 dBu = -92.7 dBm	-92.7	-92.7	-92.7	-92.7
Receiver Capture (dB)	10.0	10.0	10.0	10.0
Noise Margin (dB)	30.52	30.52	28.76	25.75
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
C/N Margin (dB)	13.52	13.52	10.76	5.75
Standard deviation (8 dB)	8.0	8.0	8.0	8.0
Z	1.690	1.690	1.345	0.718
Noise Reliability (%)	95.45%	95.45%	91.06%	76.37%
C/I for <1% prob of capture	36.4	36.4	36.4	36.4
I (dBu)	3.7	3.7	3.7	3.7
I (dBm)	-129.0	-129.0	-129.0	-129.0
Joint Probability (C & I)	94.2%	94.2%	90.4%	75.8%
40 dBu = -92.7 dBm @ 770 MHz				

Table 1 Joint Probability For Project 25, 700 MHz Equipment Configurations.

To analyze the impact of requiring portable in building coverage, several scenarios are presented. The different scenarios involve a given separation from the desired sites. Then the impact of simulcast is included to show that the 40 dBu must be able to fall outside the edge of the service area. From the analysis, recommendations of how far the 40 dBu extensions should be allowed to occur are made.

Table 2 Estimates urban coverage where simulcast is required to achieve the desired portable in building coverage. Several assumptions are required to use this estimate.

- Distance from the location to each site. Equal distance is assumed.
- CMRS noise is reduced when entering buildings. This is not a guarantee as the type of deployments is unknown. It is possible that CMRS units may have transmitters inside buildings. This could be potentially a large contributor unless the CMRS OOB is suppressed to TIA's most recent recommendation and the "site isolation" is maintained at 65 dB minimum.
- The 40 dBu is allowed to extend beyond the edge of the service area boundary.
- Other configurations may be deployed utilizing additional sites, lower tower heights, lower ERP and shorter site separations.

Estimated Performance at 2.5 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz

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Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-72.7	-72.7	-72.7	-72.7
Margin (dB)	53.50	53.50	51.80	45.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	20	20	20	20
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	85.60%	85.60%	76.58%	39.17%
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 2, Estimated Performance From Site(s) 2.5 Miles From Typical Urban Buildings.

Table 2 shows for the example case of 2.5 miles that simulcast is required to achieve public safety levels of reliability. The difference in performance margin requirements would require more sites and closer site-to-site separation for wider bandwidth channels. Figures 2 and 3 show how the configurations would potentially be deployed for a typical site with 240 Watts ERP. This is based on:

- 75 Watt transmitter, 18.75 dBW
- 200 foot tower
- 10 dBd 180 degree sector antenna +10.0 dBd
- 5 dB of cable/filter loss. - 5.0 dB

23.75 dBW \approx 240 Watts (ERPd)

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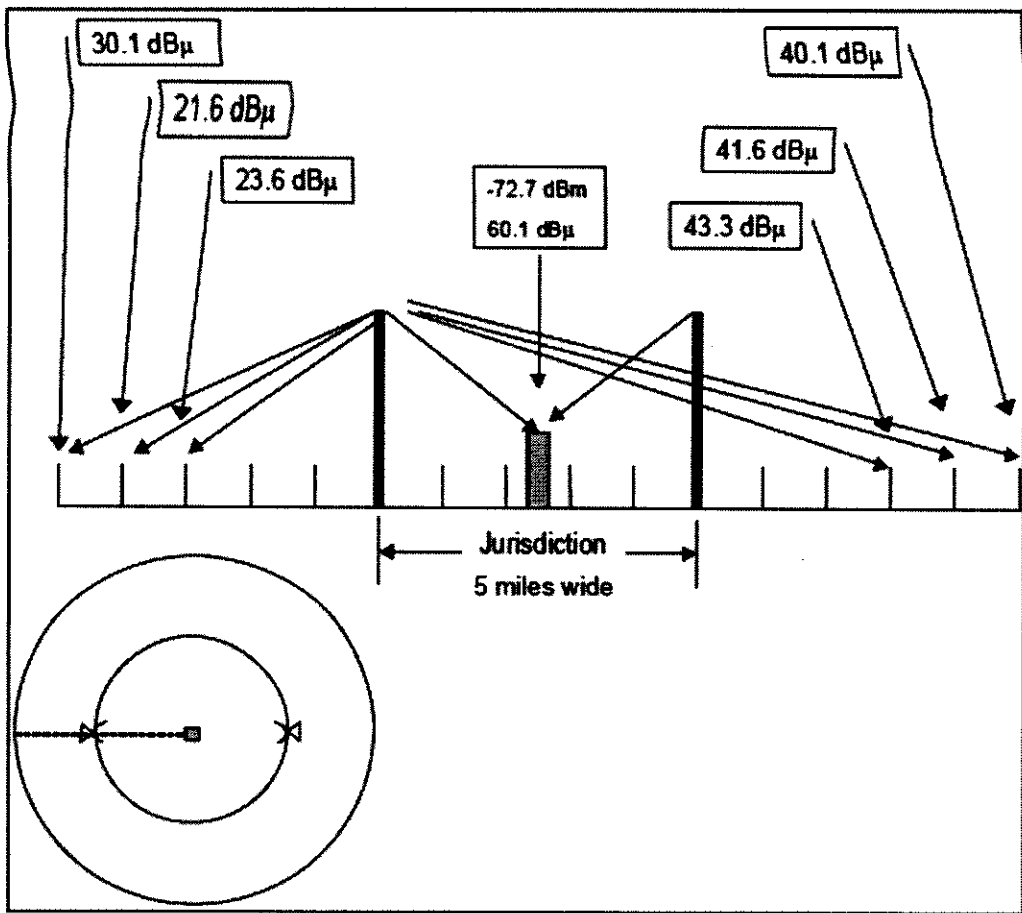


Figure 2 - Field Strength From Left Most Site.

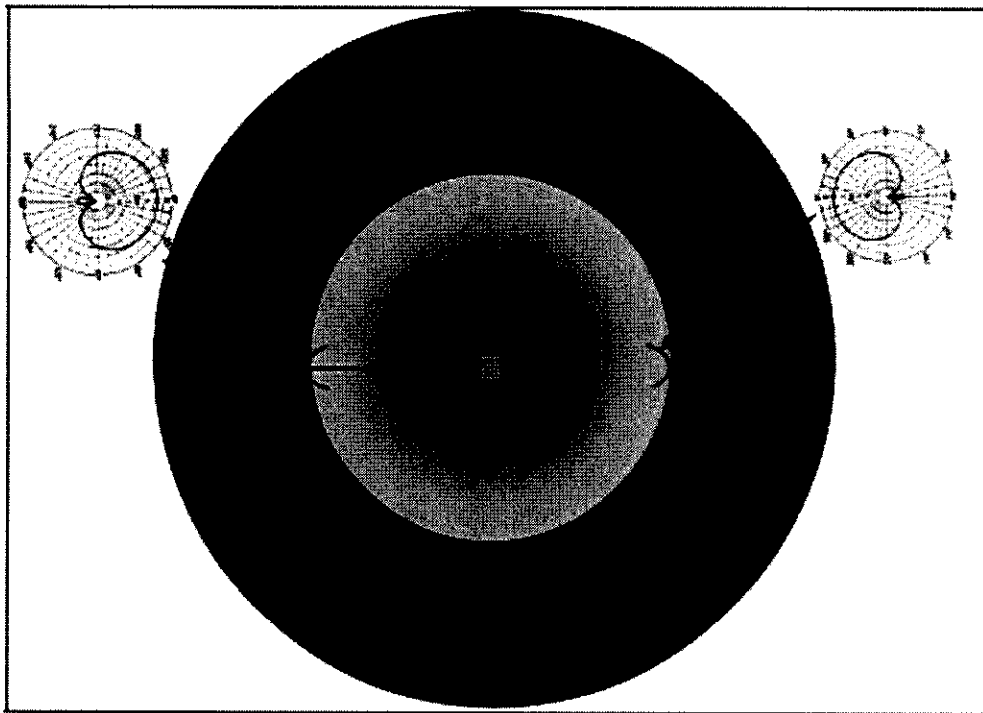


Figure 3 - Antenna Configuration Required To Limit Field Strength Off "Backside"

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Figure 2 is for an urbanized area with a jurisdiction of a 5-mile circle. To provide the necessary coverage to portables in buildings at the center of the jurisdiction requires that the sites be placed along the edge of the service area utilizing direction antennas oriented toward the center of the service area (Figure 3). In this case, at 5 miles beyond the edge of the service area, the sites would produce composite field strength of approximately 40 dBμ. Since one site is over 10 dB dominant, the contribution from the other site is not considered. The control of the field strength behind the site relies on a 20 dB antenna with a Front to Back Ratio (F/B) specification as shown in Figure 3. This performance may be optimistic due to backscatter off local obstructions in urbanized areas. However, use of antennas on the sides of buildings can assist in achieving better F/B ratios and the initial planning is not precise enough to prohibit using the full 20 dB.

The use of a single site at the center of the service area is not normally practical. To provide the necessary signal strength at the edge of the service area would produce field strength 5 miles beyond in excess of 44 dBμ. However, if the high loss buildings were concentrated at the service area's center, then potentially a single site could be deployed, assuming that the building loss sufficiently decreases near the edge of the service area allowing a reduction in ERP to achieve the desired reliability.

The down tilting of antennas to control the 40 dBμ is not practical as the difference in angular discrimination from a 200-foot tall tower at 2.5 miles and 10 miles is approximately 0.6 degrees.

Tables 3 and 4 represent the same configuration, but for less dense buildings. In these cases, the distance to extend the 40 dBm can be determined from Table Z.

Recommendations are made in Table 6

Estimated Performance at 3.5 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-77.7	-77.7	-77.7	-77.7
Margin (dB)	48.50	48.50	46.80	40.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	15	15	15	15
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	85.60%	85.60%	76.58%	39.17%
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 3 - Lower Loss Buildings, 3.5 Mile From Site(s)